

**In the claims:**

Please amend the claims as follows:

1. (Amended) A crystal of a core RNA polymerase (RNAP) from a eukaryote or prokaryote that effectively diffracts X-rays for the determination of the three-dimensional atomic coordinates to a resolution of better than 3.5 Angstroms.
2. (Amended) The crystal of Claim 1, wherein the core RNA polymerase is from a prokaryote and is a bacterial core RNA polymerase.
3. (Amended) The crystal of Claim 2, wherein the bacterial core RNA polymerase is a thermophilic bacterial core RNA polymerase.
4. (Amended) The crystal of Claim 3, wherein the thermophilic bacterial core RNA polymerase is a ~~Thermus aquaticus~~ Thermus aquaticus bacterial core RNA polymerase.
5. (Amended) The crystal of Claim 1, wherein the core RNA polymerase comprises a  $\beta'$  subunit, a  $\beta$  subunit, and a pair of  $\alpha$  subunits.
6. (Amended) The crystal of Claim 5, further comprising an  $\omega$  subunit.
7. (Amended) The crystal of Claim 1 that effectively diffracts X-rays for the determination of the three-dimensional atomic coordinates of the core RNA polymerase to a resolution of 3.3 Angstroms or better.
8. (Amended) The crystal of Claim 7 having space group of P41212 and a unit cell of dimensions of  $a=b=201$  and  $c=294$  Å.

Claims 21-22 (Cancelled)

23. (New) A crystallized polypeptide comprising: (a) at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3; or (b) an amino acid sequence that is substantially similar to at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3; and has at least one biological activity of a core RNA polymerase from *Thermus*

*aquaticus* wherein the polypeptide of (a), (b) or (c) is in crystal form and wherein said crystallized polypeptide diffracts x-rays to a resolution of about 3.5 Å or better for the determination of the three-dimensional atomic coordinates of said core RNA polymerase.

24. (New) The crystallized polypeptide of claim 23, wherein said crystallized polypeptide comprises an amino acid sequence that has at least about 80% sequence homology to at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3.
25. (New) The crystallized polypeptide of claim 23, wherein said crystallized polypeptide comprises an amino acid sequence that has at least about 85% sequence homology to at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3.
26. (New) The crystallized polypeptide of claim 23, wherein said crystallized polypeptide comprises an amino acid sequence that has at least about 90% sequence homology to at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3.
27. (New) The crystallized polypeptide of claim 23, wherein said crystallized polypeptide comprises an amino acid sequence that has at least about 95% sequence homology to at least one of the amino acid sequences set forth in SEQ ID NO: 1 or SEQ ID NO: 2 or SEQ ID NO: 3.
28. (New) The crystallized polypeptide of claim 23, wherein the crystal has a P41212 space group.
29. (New) The crystallized polypeptide of claim 23, which diffracts x-rays to a resolution of about 3.3 Å or better.
30. (New) The crystallized polypeptide of claim 23, wherein the polypeptide is derivatized with at least one heavy metal atom.
31. (New) The crystallized polypeptide of claim 30, wherein the polypeptide is derivatized with selenium.

32. (New) The crystallized polypeptide of claim 30, wherein the polypeptide is derivatized with one of the following: mercury, lead, or tantalum.
33. (New) The crystallized polypeptide of claim 23, further comprising a cryoprotectant.
34. (New) The crystallized polypeptide of claim 28, wherein said cryoprotectant is sucrose.